

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
2 September 2004 (02.09.2004)

PCT

(10) International Publication Number
WO 2004/074468 A1

- (51) International Patent Classification⁷: C12N 9/40, (72) Inventors; and
15/52, C07K 16/40 (75) Inventors/Applicants (*for US only*): EDENS, Lippo
(21) International Application Number: PCT/EP2003/005726 [NL/NL]; Hoflaan 118, NL-3062 JL Rotterdam (NL).
(22) International Filing Date: 28 May 2003 (28.05.2003)
(25) Filing Language: English
(26) Publication Language: English
(30) Priority Data:
02100583.0 30 May 2002 (30.05.2002) EP (72) Inventors; and
02100586.3 30 May 2002 (30.05.2002) EP (75) Inventors/Applicants (*for US only*): EDENS, Lippo
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02100588.9 30 May 2002 (30.05.2002) EP VAN DIJK, Albertus, Alard [NL/NL]; Cederreef
02100589.7 30 May 2002 (30.05.2002) EP 32, NL-3137 PB Vlaardingen (NL). HOPPER, Sylvia
02100590.5 30 May 2002 (30.05.2002) EP [DE/DE]; Lochhamer Str. 11, 82152 Martinsried (DE).
02100591.3 30 May 2002 (30.05.2002) EP ILGENFRITZ, Hilmar [DE/DE]; Lochhamer Strasse
02100592.1 30 May 2002 (30.05.2002) EP 11, 82152 Martinsried (DE). KEMMNER, Wolfram
02100593.9 30 May 2002 (30.05.2002) EP [DE/DE]; Boschetsrieder Str. 97 B, 81379 München (DE).
02100594.7 30 May 2002 (30.05.2002) EP KLUGBAUER, Sabine [DE/DE]; Lochhamer Str. 11,
02100597.0 30 May 2002 (30.05.2002) EP 82152 Martinsried (DE). FRITZ, Andreas [DE/DE];
02100598.8 30 May 2002 (30.05.2002) EP Lochhamer Strasse 11, 82152 Martinsried (DE). MAIER,
02100600.2 30 May 2002 (30.05.2002) EP Dieter [DE/DE]; Lochhamer Str. 11, 82152 Martin-
02100601.0 30 May 2002 (30.05.2002) EP sried (DE). TAN, Pamela [DE/DE]; Lochhamer Str. 11,
02100602.8 30 May 2002 (30.05.2002) EP 82152 Martinsried (DE). SPREAFICO, Fabio [IT/DE];
02100603.6 30 May 2002 (30.05.2002) EP Lochhamer Str. 11, 82152 Martinsried (DE). STOCK,
02100604.4 30 May 2002 (30.05.2002) EP Alexander [DE/DE]; Lochhamer Str. 11, 82152 Martin-
02100605.1 30 May 2002 (30.05.2002) EP sried (DE). KIMPEL, Erik [DE/DE]; Sämannstr. 100,
02100606.9 30 May 2002 (30.05.2002) EP 81249 München (DE). HEINRICH, Oliver [DE/DE];
02100613.5 3 June 2002 (03.06.2002) EP Lochhamer Str. 11, 82152 Martinsried (DE). GERHARD,
02100621.8 3 June 2002 (03.06.2002) EP Beatrix [DE/DE]; Lochhamer Str. 11, 82152 Martinsried
02100622.6 3 June 2002 (03.06.2002) EP (DE). EHRENREICH, Armin [DE/DE]; Lochhamer Str.
02100623.4 3 June 2002 (03.06.2002) EP 11, 82152 Martinsried (DE). LOSKO, Sascha [DE/DE];
02100624.2 3 June 2002 (03.06.2002) EP Lochhamer Str. 11, 82152 Martinsried (DE). WAGNER,
02100625.9 3 June 2002 (03.06.2002) EP Christian [DE/DE]; Lochhamer Str. 11, 82152 Martin-
02100629.1 3 June 2002 (03.06.2002) EP sried (DE). FOLKERS, Ulrike [DE/DE]; Lochhamer
02100644.0 3 June 2002 (03.06.2002) EP Str. 11, 82152 Martinsried (DE). ALBANG, Richard
02100645.7 3 June 2002 (03.06.2002) EP [DE/DE]; Lochhamer Str. 11, 82152 Martinsried (DE).
02100730.7 20 June 2002 (20.06.2002) EP
02102522.6 1 November 2002 (01.11.2002) EP
02102523.4 1 November 2002 (01.11.2002) EP
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32, NL-3137 PB Vlaardingen (NL). HOPPER, Sylvia [DE/DE]; Lochhamer Str. 11, 82152 Martinsried (DE). ILGENFRITZ, Hilmar [DE/DE]; Lochhamer Strasse 11, 82152 Martinsried (DE). KEMMNER, Wolfram [DE/DE]; Boschetsrieder Str. 97 B, 81379 München (DE). KLUGBAUER, Sabine [DE/DE]; Lochhamer Str. 11, 82152 Martinsried (DE). FRITZ, Andreas [DE/DE]; Lochhamer Strasse 11, 82152 Martinsried (DE). MAIER, Dieter [DE/DE]; Lochhamer Str. 11, 82152 Martinsried (DE). TAN, Pamela [DE/DE]; Lochhamer Str. 11, 82152 Martinsried (DE). SPREAFICO, Fabio [IT/DE]; Lochhamer Str. 11, 82152 Martinsried (DE). STOCK, Alexander [DE/DE]; Lochhamer Str. 11, 82152 Martinsried (DE). KIMPEL, Erik [DE/DE]; Sämannstr. 100, 81249 München (DE). HEINRICH, Oliver [DE/DE]; Lochhamer Str. 11, 82152 Martinsried (DE). GERHARD, Beatrix [DE/DE]; Lochhamer Str. 11, 82152 Martinsried (DE). EHRENREICH, Armin [DE/DE]; Lochhamer Str. 11, 82152 Martinsried (DE). LOSKO, Sascha [DE/DE]; Lochhamer Str. 11, 82152 Martinsried (DE). WAGNER, Christian [DE/DE]; Lochhamer Str. 11, 82152 Martinsried (DE). FOLKERS, Ulrike [DE/DE]; Lochhamer Str. 11, 82152 Martinsried (DE). ALBANG, Richard [DE/DE]; Lochhamer Str. 11, 82152 Martinsried (DE).
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(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,

[Continued on next page]

(54) Title: NOVEL PECTINASES AND USES THEREOF

(57) Abstract: The invention relates to newly identified polynucleotide sequences comprising genes that encode novel pectinases isolated from *Aspergillus niger*. The invention features the full length nucleotide sequence of the novel genes, the cDNA sequences comprising the full length coding sequence of the novel pectinases as well as the amino acid sequence of the full-length functional proteins and functional equivalents thereof. The invention also relates to methods of using these enzymes in industrial processes and methods of diagnosing fungal infections. Also included in the invention are cells transformed with a polynucleotide according to the invention and cells wherein a pectinase according to the invention is genetically modified to enhance or reduce its activity and/or level of expression.

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